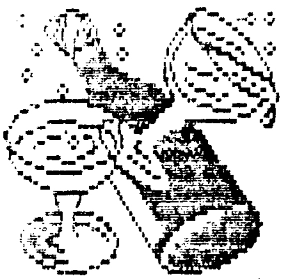
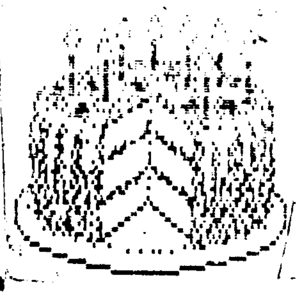
VZDU # 37 JULY/AUDUST 1992

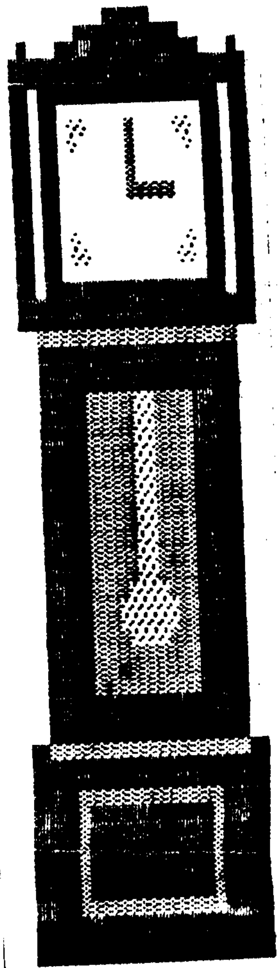


DOWN UNDER CLUB



Editor
Harry Huggins
12 Thomas Str.
Mitcham. 3132
03-873-1408

Treasurer
Ron Allen
2 Orlando Str.
Hampton. 3188
03-598-4534



HAPPY BIRTHDAY VZDU CLUB.

Six years old and still going around. Unfortunately Mitch is tied up with football and not been able to do a sketch for us. So 'Dear Harry' does'nt get his portrait on the front page. Instead I have put Peter's Grandfather clock there. That is the winning entry in our competition. Congratulations Peter.

I was dissappointed with the number of entries we got in our competition. What we did get were good. The wimmer is Peter Watson. Game players may have heard of him! The program is inside. I should wring his neck though. Sent it, not on tape or disk, but a printout that I had to type in to see what it was!!!

AS usual, I am short of articles. Fortunately Bob has sent in a very good instructional program. It is a Basic program that runs as Basic, and shows the Z80 register contents as it runs. I suggest you type this in and study it till you can alter it and still run. That way you will understand it. There are 2 other programs with this, but they have already been in this N/Letter, in nos. 20 & 32. If you do not have them, they can be borrowed on loan, or purchased direct from Ron, at $3 each.

You will find a some data about the Amiga computer and Apple / MacIntosh. Also some comments from me on a later page.

That's all for this page. Look at a later page for comments from the Editor. Also a very good instruction article on getting High Scores. No. Not from Peter but from Tim, who takes most of the scores this month. We hope to see Peter's Tips next month.

Harry

VISIBLE Z 80

BY BOB KITCH. June 1992

In the early days of computing, programmers first learnt to program in Assembler, and then later progressed to a High-Level language. Nowadays, programmers learn to program in BASIC and then want to learn Assembler to speed up their programs.

I have been asked on many occasions to write an introduction to Assembler Language programming for people competent in BASIC programming.

A number of Assembler articles have appeared in VZDU and include

#17-#18	Vectors and Real-time Clock
#20-#22	Livenup
#20=#21	Hi-res Graphics and Boolean Logic Operations
#24	Flicker Free Graphics
#32-#34	Assembler - a coward's introduction
#34	Fast Basic

Basic programmers still struggle with Assembler particularly when using texts like Zac's book on Z80 programming.

Another approach is needed.

I realised that the Basic programmer needed a model of what actually happens on the Z80 chip. A representation of the on-chip register set is required. The correspondence between Assembler opcodes and Basic commands also needs to be established.

As a consequence of this realisation, I have written three Basic programs that use my concept of the "Visible Z 80". The programs try to serve two purposes. The first is to show on the screen, the workings of the Z80. Secondly, the Basic coding is meant to resemble Assembler programs using the technique of psuedo-code.

The three programs in the Visible Z80 series are
VZ80BORD - Dancing screen border
VZ80LDIR - Block load simulator
VZ80BLOG - Boolean logic operation

Dancing Border-

Before commencing a program, a reasonably interesting problem must be defined and understood. It is surprising how many programmers have problems developing programs because they do not understand the problem!

Let's define a problem on the lo-res screen. We want a border of block graphic characters (#128-#255) around the outside of the 32 X 16 character screen. I then want these characters to "rotate" around the screen to give an appeance of movement. This effect can be seen on the title screen to Defence Penetrator, Morgoth or Rally Racer - all early VZ games by Cosmic Software that was adapted from the TRS-80 computer.

This is an interesting programming exercise that only uses a few bytes of memory when written in Assembler.

Basic program VZ80BORD is my solution to this problem, with Assembler written as psuedo-code in the remark statments. Enter the program and RUN it. It runs quite slowly in basic but the on-screen display of the Z80 registers demonstrates how the Assembler program would run.

To speed up the executation of the "Dancing Border" either compile the program with VZBASCOM or write the Assembler routine as suggested by the psuedo-code. See how short you can make the program.

BLOCK LOAD

The Z-80 Block Load instruction is quite powerful. The LDIR opcode has been explained in VZDU #19 (screen mask preserver).
Basic program VZ80LDIR shows the corresponding psuedocode for a 2K screen fill routine. The program is not very interesting to watch running, but a study of the listing is worthwhile.

Boolean Logic Operators

This was my earliest attempt at Visible Z-80 programming. Basic program VZ80BLOG has previously been published in VZDU #20 and #21- so perhaps you have already entered it? The program demonstrates the flag registers on the Z-80, and the AND, OR, XOR opcodes. An understanding of binary, hexadecimal and decimal notation is also gained.

I hope that this discussion and the programs clarify some of the mysteries of the Z-80 chip and Assembler program.

Any comments are welcome.
Is a major series on the Visible Z-80 worthwhile ?

```
1 '*********************
2 '***  DEMO PROGRAM  ***
3 '***  TO SHOW HOW   ***
4 '***  THE Z80 MPU   ***
5 '***   USES LOGIC   ***
6 '***   OPERATIONS   ***
7 '***  TO SET FLAGS  ***
8 '***  RBK 30.11.86  ***
9 '*********************
10 '***MAINLINE OF PROGRAM***
20 GOSUB 30000:'***INITIALIZATION***
30 GOSUB 20000:'***PROGRAM MIDDLE***
50 B$="PRESS <SPACE> TO CONTINUE":X%=3:Y%=15:GOSUB 7000
60 AA$=INKEY$:AA$=INKEY$:IF AA$="" THEN GOTO 60
90 GOTO 30
1000 '***SET NEGATIVE AND ZERO FLAGS***
1100 '***SET NEGATIVE FLAG BY BIT 7***
1200 NG%=ABS(INT(AC%/128))
1300 '***SET ZERO FLAG IF AC%=ZERO***
1400 IF (AC%=0) THEN ZE%=1 ELSE ZE%=0
1990 RETURN
5000 '***DEC N% TO HEX HN$***
5100 HI%=INT(N%/16)
5110 HN$=MID$(HX$,HI%+1,1)
5200 LO%=N%-HI%*16
5210 HN$=HN$+MID$(HX$,LO%+1,1)
5990 RETURN
6000 '***DEC N% TO BIN BN$***
6100 BN$=""
6200 FOR Q%=7 TO 0 STEP -1
6210 BT$="0"
6220 IF(N% AND 2^Q%) THEN BT$="1"
6230 BN$=BN$+BT$
6240 NEXT Q%
6990 RETURN
7000 '***PRINT B$ AT (X%,Y%)***
7100 PS%=32*Y%+X%
7200 PRINT@PS%,B$;
7300 RETURN
8000 '***BIN BN$ TO DEC N%***
8100 N%=0
8200 FOR Q%=0 TO 7
8210 IF VAL(MID$(BN$,Q%+1,1)) THEN N%=N%+2^(7-Q%)
8220 NEXT Q%
8990 RETURN
9000 '***HEX HN$ TO DEC N%
9100 A%=ASC( LEFT$(HN$,1))-48
9110 B%=ASC(RIGHT$(HN$,1))-48
9200 N%=B%+7*(B%>9)-(-1)*(16*(A%+7*(A%>9)))
9990 RETURN
10000 '***AND THE ACCUMULATOR WITH THE DATA***
10100 AC%=AC% AND DT%
10200 GOSUB 1000
10990 RETURN
11000 '***OR THE ACCUMULATOR WITH THE DATA***
11100 AC%=AC% OR DT%
11200 GOSUB 1000
11990 RETURN
12000 '***EXCLUSIVE-OR THE ACCUMULATOR WITH THE DATA***
```

```
12100 AC%=(AC% OR DT%) - (AC% AND DT%)
12200 GOSUB 1000
12990 RETURN
20000 '***PROGRAM MIDDLE***
20100 '***CLEAR SCREEN, PICK CASE, PRINT HEADER***
20110 CLS
20120 MX%=3:MN%=0:GOSUB 40000:CS%=RN%
20130 B$=OP$(CS%):X%=12:Y%=0:GOSUB 7000
20140 B$=HD$:X%=1:Y%=3:GOSUB 7000
20200 '***PRINT TRANSLATIONS OF ACCUMULATOR CONTENTS***
20210 MX%=255:MN%=0:GOSUB 40000:N%=RN%
20250 YO%=5:GOSUB 21000
20260 AC%=N%
20300 '***PRINT TRANSLATION OF DATA ADDRESS CONTENTS***
20310 GOSUB 40000:N%=RN%
20320 YO%=7:GOSUB 21000
20330 DT%=N%
20400 '***GET AND SORT GUESS INTO BIN/HEX/DEC***
20500 B$="":X%=1:Y%=9:GOSUB 7000
20510 INPUT "RESULT [illegible] ";G$
20520 IF (LEN(G$)<1) OR (LEN(G$)>9) THEN GOTO 20500
20530 A$=LEFT$(G$,1)
20540 C$=RIGHT$(G$,LEN(G$)-1)
20550 IF A$<>"B" THEN GOTO 20600:'***GUESS NOT BIN***
20560 BN$=C$
20570 GOSUB 8000
20580 F%=3
20590 GOTO 20700
20600 IF A$<>"H" THEN GOTO 20650:'***GUESS NOT HEX***
20610 HN$=C$
20620 GOSUB 9000
20630 F%=2
20640 GOTO 20700
20650 IF A$<>"D" THEN GOTO 20500:'***GUESS NOT DEC***
20655 N%=VAL(C$)
20660 F%=1
20700 '***GUESS HERE***
20710 G%=N%
20800 '***DO OPERATION***
20812 IF CS%=0 THEN GOSUB 10000
20813 IF CS%=1 THEN GOSUB 11000
20814 IF CS%=2 THEN GOSUB 12000
20820 YO%=11:N%=AC%:GOSUB 21000
20900 '***UPDATE SCORE***
20910 IF G%=AC% THEN PT%=PT%+10*F%
20920 B$="SCORE"+STR$(PT%):X%=9:Y%=13:GOSUB 7000
20990 RETURN
21000 '***TRANSLATE DEC N% AND PRINT AT YO%***
21210 GOSUB 6000
21220 GOSUB 5000
21240 B$=BN$:X%=1:Y%=YO%:GOSUB 7000
21250 B$=HN$:X%=10:Y%=YO%:GOSUB 7000
21260 B$=RIGHT$("  "+STR$(N%),3):X%=14:Y%=YO%:GOSUB 7000
21300 IF YO%<>11 THEN GOTO 21990
21400 B$=STR$(NG%)+STR$(ZE%):X%=17:GOSUB 7000
21990 RETURN
30000 '***INITIALIZATION***
30100 HX$="0123456789ABCDEF"
```

```
10 '*************************
20 '***      VISIBLE Z80     ***
30 '***        DANCING       ***
40 '***     SCREEN BORDER    ***
50 '***      BY BOB KITCH    ***
60 '***         4/4/91       ***
70 '*************************
80 '
98 '
99 '***INITILIZATION.
100 CLS
110 PRINT@105,"VISIBLE Z80":PRINT@202,"REGS   VALUE"
120 PRINT@137,"=============":PRINT@73,"=============="
130 P%=266:Q%=P%+5:F$="#####"
140 PRINT@P%     ," A =          BLOCK"
150 PRINT@P%+ 32," B =          COUNTER"
160 PRINT@P%+ 64,"DE =          INC"
170 PRINT@P%+ 96,"HL =          VRAM"
180 PRINT@P%+186,"(TOP LEFT - 1)   ST% = "
198 '
199 '***SET UP STOR FOR FIRST CHARACTER.
200 ST%=127      :'STOR EQU 127
210 A%=ST%       :'BEGN LD A,(STOR)
220 GOSUB 2000
298 '
299 '***DO TOP BORDER.
300 HL%=28672   :'       LD HL,7000H
310 DE%=1       :'       LD DE,0001H
320 B%=32       :'       LD B,20H
330 GOSUB 2010
340 GOSUB 900   :'       CALL DOIT
398 '
399 '***DO RH BORDER.
400 HL%=28735   :'       LD HL,703FH
410 DE%=32      :'       LD DE,0020H
420 B%=14       :'       LD B,0EH
430 GOSUB 2010
440 GOSUB 900   :'       CALL DOIT
498 '
499 '***DO BOTTOM BORDER.
500 HL%=29183   :'       LD HL,71FFH
510 DE%=-1      :'       LD DE,FFFFH
520 B%=32       :'       LD B,20H
530 GOSUB 2010
540 GOSUB 900   :'       CALL DOIT
598 '
599 '***DO LH BORDER.
600 HL%=29120   :'       LD HL,71C0H
610 DE%=-32     :'       LD DE,FFE0H
620 B%=14       :'       LD B,0EH
630 GOSUB 2010
640 GOSUB 900   :'       CALL DOIT
698 '
699 '***PRESERVE LAST A% IN STOR.
700 A%=PEEK(28672):'     LD A,(7000H)
710 ST%=A%      :'       LD (STOR),A
720 GOTO 210    :'       RET
898 '
899 '***SUBROUTINE THAT PUTS UP BORDERS ACCORDING TO REGISTERS.
```

```
900 A%=A%+1      :'DOIT INC A
905 GOSUB 2040
910 IF A%<256 THEN GOTO 930
915              :'      JR NZ, NEXT
920 A%=128       :'      LD A,128
925 GOSUB 2040
930 POKE HL%,A%:'NEXT LD (HL),A
940 HL%=HL%+DE%:'       ADD HL,DE
950 B%=B%-1      :'      DJNZ, DOIT
955 GOSUB 2020
960 IF B%<>0 THEN GOTO 900
970 RETURN       :'      RET
1998 '
1999 '***MULTIPLE ENTRY SUB TO UPDATE REGISTER VALUES ON SCREEN.
2000 PRINT@O%+202,USING F$;ST%
2010 PRINT@O%+ 64,USING F$;DE%
2020 PRINT@O%+ 32,USING F$;B%
2030 PRINT@O%+ 96,USING F$;HL%
2040 PRINT@O%     ,USING F$;A%
2050 RETURN
9998 '
9999 '***SAVE TO DISK.
10000 CLS:PRINT@232,"ERASING DANCSCRN":ERA"DANCSCRN"
10010 PRINT@232,"SAVING  DANCSCRN":SAVE"DANCSCRN"
10030 CLS:DIR:STATUS
10040 END
```

Editor's suggestion.

Alter line 200 to;

```
200 ST%=64            :'STOR EQU 64
```

DELETE LINE 2050

INSERT LINES 2060 , 2070.

```
2060 Q$=INKEY$:Q$=INKEY$:IF Q$<>" " THEN 2060 ELSE RETURN

2070 RETURN
```

THIS WILL HAVE 2 RESULTS. IT WILL PRINT ALPHABET INSTEAD OF GRAPHIC BLOCKS WHICH MAY BE EASIER TO FOLLOW.

THE ORIGINAL WAS RATHER TOO FAST TO FOLLOW THE REGISTERS. YOU WILL HAVE TO PRESS THE SPACEBAR EACH TIME TO GET THE NEXT ACTION. HOLDING THE SPACE BAR DOWN WILL GIVE THE ORIGINAL DISPLAY.

GAMES COLUMN

How many people are taking advantage of Harry's generosity? I am! How? Easy! Pick a game, any game , make sure it has a scoring system! Play this game for 15 minutes, collecting all the scores, remember you need 2 witnesses. At the end of 15 minutes select the top score and send it to Harry.

Example: Pick 'Circus', play a few games, pick the best score-150- send to Harry. Pick another game and do the same. If you only get 50 points send it in because if no one else sends in the same game then your game is on the list. Now when the newsletter arrives and your name is on the list, play the game a little more and try to beat your score, if only by ten! Believe me! My name appeared 12 times in the last High Score Column AND I ONLY PLAYED THREE GAMES. And if you look at the scores the're not that big. You can beat me easy because so far I've had it easy with those three games. Unlike Peter Watson who won the last innings. He won because he was striving all the time to beat his own scores. Don't worry about his top scores, just start out easy, make a 100 points and then keep practising. Only Peter (and God) knows how many hours he spent in just practise. I'm sure he didn't just sit down one day, never having seen the game before, and say " I'm going to make 339670 in 'Dig out' today". Now did he! No way. He practised and practised AND PRACTISED. Now if you are beaten by some one, then challenge them, its alot more fun with two or more challenges then if you play by your self. And if you can't beat the person (say if the person gets a couple of thousand points.) then leave them to it and find another game. But remember, not all games are easy to play. Here is a list of some easy, hard and difficult games to play.

Easy:Asteriods, Circus, Crash-4, Defence Penetrator J/S, Dig Out, Pharoah's Curse Levels 1&2, Space Ram, Star Blaster Levels 1,2,&3 and Super Snake.

Hard:Crash-2, Dawn Patrol, Defence Penetrator K/B, Galaxon, Ghost Buster, Hamburger Sam, Hoppy, Ladder Challenge, Maze of Argon, Pharoah's Curse Levels 3&4, Planet Patrol, Star Blaster Level 4 and Ten Pin Bowls.

Difficult:Bust-Out, Kamikaze, Killer Tomatoes, Knights & Dragons (both levels), Lunar Lander (both games), Missile Attack, Pharoah's Curse Level 5, Star Blaster Level 5 and VZ Invaders.

This is only a general guide, I don't expect all the easy games to be easy for every one just generaly easy. And I expect Peter Watson to have only one or two difficult games.

****

This issue I shall be reviewing Scot La Brun's "STELLA WAR".

STELLA WAR.

After being greeted by the computer you are told that you have been recruited by the league to defend the Frontier against Xur and the Ko-Dan armada.(We've seen this before, Ah?).

You have been assigned a small sector of the known galaxy [illegible] parsecs in each direction. Having limited fuel you must be careful to refuel with either a fuel tanker or Home Base, which will also repair you.

After being briefed you find yourself in your cockpit. To the right of the screen is your fuel consumption. At the top left hand corner is the radar with the co-ordinates to its right, below this is the radar print-out screen which tells you where a Ko-Dan fighter is. After a while a CONDITION RED appears on the screen, ignore it , it just means that a Ko-Dan fighter is firering on you. It will miss unless you are too close to it, in which case you should be able to destroy it. About where the CONDITION RED appears is your instruments:

U=up	A=advance
D=down	R=retreat
P=port	S=starboard
F=fire	

H=hyperspace

E=exit mission.

Only use Hyperspace if in trouble, like low fuel and life supports are gone, because it takes you farther away from the Home Base or it can land you anywhere unknown. I have had the fortune to find Home-Base as soon as the screen appeared, so I wrote the co-ords down and it saved my life but I had to exit game as I was still only writing this down on rough copy.(Sad, Ah?).

Well a bit of advice, unlike 'Galactic Empires', 'Stella War' is a lot slower, so keep pressing the buttons down untill you hear a beep. 'Galactic Empires' and 'Stella War' were both copyrighted in 1986, but I will hazard a guess and say that 'Stella War' was the prototype of the two.

This is an enjoyable game, lacks some of the joys of 'Galactic Empires' but is just as fun.

I hope I have been of some help and remember not all of the scoring games are on that list, so hunt around and try to find some new unchallenged games.

Good luck and keep practising.

THE HIGH SCORES

GAME	SCORE	LEVEL	HOLDER	ALL TIME HIGH	CHALLENGE	NAME
ASTEROIDS	11040		TIM PENDLEBURY	11000 *********NEW A.T HIGH *************	11040	TIM PENDLEBURY
BUST OUT	990		TIM PENDLEBURY	3940		
CIRCUS	500		TIM PENDLEBURY	3180		
CRASH-2	1969	2	PETER WATSON			
CRASH-4	881	4	PETER WATSON			
DAWN PATROL	6800		TIM PENDLEBURY	99600	78100	PAUL FRANTZ
DEFENCE PENET	2086	J/S	TIM PENDLEBURY			
DEFENCE PENET	2643		TIM PENDLEBURY			
DIG OUT	21400		TIM PENDLEBURY	83700		
GALAXON	28530		MITCH PENDLEBURY	339670	328460	PETER WATSON
GHOST BUSTER						
HAMBURGER SAM	33300		TIM PENDLEBURY	99900		
HOPPY	4750		TIM PENDLEBURY	25550		
KAMIKAZE					174850	PETER WATSON
KILLER TOMATO	570	JS/KB ??	PETER WATSON	19900		
KNGS & DRAGONS		EASY		5300		
KNGS & DRAGONS		EXPERT		1200		
LADDER CHAL				29500	24380	PETER WATSON
LUNAR LANDER TAPE 3	3100		TIM PENDLEBURY	76600		
LUNAR LANDER TAPE 5				8000		
MAZE OF ARGON				102684	78306	PETER WATSON
MISSILE ATTACK						
PANIK				16720	11540	PETER WATSON
PENGUIN				3610		
PHAROAH'S CURSE	204	1	TIM PENDLEBURY			
PHAROAH'S CURSE	297	2	TIM PENDLEBURY			
PHAROAH'S CURSE	321	3	TIM PENDLEBURY			
PHAROAH'S CURSE	255	4	TIM PENDLEBURY			
PHAROAH'S CURSE	171	5	TIM PENDLEBURY			
PLANET PATROL				1588		
SPACE RAM	438		MITCH PENDLEBURY	1441		
STAR BLASTER	373	5	TIM PENDLEBURY			
STAR BLASTER	419	4	TIM PENDLEBURY			
STAR BLASTER	625	3	TIM PENDLEBURY			
STAR BLASTER	683	2	TIM PENDLEBURY			
STAR BLASTER	897	1	TIM PENDLEBURY			
SUPER SNAKE				1918		
TEN PIN BOWLS				255		
VZ INVADERS	10910		TIM PENDLEBURY	30160		

Amiga

The computer to upgrade to
by Scott Le Brun

The Commodore Amiga computer has been around for quite some time and the way it has been going, it will be around for a long time to come.

Commodore reported that last year, the 2 millionth Amiga had been sold world wide since its inception a few years ago. It has just taken 12 months to sell an additional 1 million.

The Amiga has simply taken off!

As a result of an ever expanding user base, more developers in both software and hardware see that the Amiga is here to stay.

Why upgrade to the Amiga?

The Amiga incorporates the Motorola 68000 CPU as used in the Apple McIntosh. It uses custom chips to control true 4 channel STEREO sound that you can plug directly into an amplifier. Custom chips also handle all graphics modes including Hold And Modify (HAM) mode enabling 4096 colours on screen simultaneously.

Like the McInstosh, the Amiga uses a WIMP environment (stands for Windows, Icons, Menus & Pointers) to run applications. Just point and click the mouse button to run your programs. You can also use the CLI (Command Line Interface) to run your programs by just typing their names, just like the VZ.

The Amiga uses true Multitasking to run your applications You can run as many programs at the same time as you have available memory. (The base model Amiga comes with 512K RAM and is upgradable to a full 9 Megabytes.) With a press of a key you can move from one program to another whilst still keeping your data in memory.

The base model Amiga comes with an RF modulator which means that you can plug in your TV, that you used with your VZ200, into your Amiga. You can of course, plug in a monitor to increase the clarity of the screens at a later stage.

You can also plug almost any printer into the Amiga to use with almost any program. The Amiga uses printer drivers to personalise your Amiga to your printer for almost perfect printing.

The Amiga is becoming increasingly powerful, with the range of products that are being developed by third party manufacturers.

You are not locked in to using the Commodor products with your Amiga. The Amiga 500 has a expansion port on the left side of the keyboar which you can plug in any number of product including Hard Disk drives (upto 240 Megs) expansion memory, accelerator cards (to speed u the performance of your Amiga with the latest i technology) and the new Compact Disc drive jus released from Commodore. This enables program to access more than 650 M of information from single disc!

The Amiga has found its way into just about a areas of human applications, research, educatio science, video, music, animation, business, deskto publising, art, etc. The list goes on.

The Amiga with the addition of some hardwar can run both IBM and McIntosh programs. Th Amiga can even run all three operating systems <u>the same time!</u> I have seen the Amiga ru McIntosh programs faster than the McIntos itself! You can transfer your documents that yo typed on your Amiga word processor o spreadsheet to IBM/MAC disks ready for work th next day!

I have had my Amiga ever since I upgraded fro the VZ300. I still use my Star NX-10 printer an performs like I've never seen it before. I hav started programming in a language called AMO This is a Basic programming language similar t what we've seen built into the VZ. This versio has been enhanced significantly to what you' been used to. You can create huge objects on t screen and move them around effortlessl Creating great arcade games that move smooth across the screen has never been easier. You ca load in music and instruct it to play the tune at t same time as your game is running with a sing command. I have converted and updated m original adventure game that I wrote on the VZ2 called Castle Greystone to this new language. runs better than ever with an awesome music tra added for atmosphere.

I am a member of the Fastmode Amiga Clu here in Victoria. We have been involved in so very interesting aspects of the Amiga, includi connecting a video camera up to some ext

hardware and *digitising* the image from photographs onto the computer screen for editing etc. I personally have been involved in *sampling* music and sound effects from video, tape, records and compact discs and recording them on the computer for inclusion in games and demonstrations etc. Some of the other at the club have been using their Amigas to create cartoon like animation for addition to live video work. They have even been selling their creations to make a living, doing what they like best.

The latest addition to my hardware is my electronic piano keyboard. This plugs into the back of my Amiga (although it operates perfectly without it) and through the software that comes with the keyboard, the Amiga teachs me to play! The Amiga actually listens to the way I play the tunes that it sets out in the lessons and gives me feedback on my performance, like "You'v pressed the right notes, but not at the right times" (and then tells you where and when you should). I have never even remotely thought myself musical, but now I am learning at an alarming rate. It's great fun!

Some of you may have even heard of Commodore's CDTV. This is a new product bringing multi-media to the masses. Multi-media is a term for associating written words with pictures. For instance, the Bible may make a reference to a certain person. You could then look up this person at the flick of a button and also have instant access to any other parts of the Bible where this person appears along with a description of the person as well as a hand drawn picture or two.

On closer inspection you will find out that the CDTV is in fact a cut down Amiga with a CD drive put into a nice shiny black box! In fact, by adding a keyboard and and external floppy disk drive, the CDTV can run all Amiga software!

No matter what your interests are, the Amiga is the computer for you.From the games player, to the person who wants to run his small business, for the curious who want to know how their computers work and want to program them, to the professional who want to produce the best looking desktop published documents ever seen, the Amiga is the answer.

The Amiga has been hard at work You may have seen its handiwork on television commercials producing spectacular animation where previously specialised equipment costing tens of thoudands of dollars were used to do the same job.

The Amiga is not just the games machine that others may label it. It does the job and it does it well like no other

.Ok, the Amiga is a fantastic computer, but what's th catch?

To put it simply, it's the price when compared with a cheap Taiwanese IBM clone. The bottom range 286 with a 40M hard disk and VGA screen comes in at around $1200. The Amiga 500 with a monitor and a 52M hard disk comes in at around $1600. (Although the IBM would need a sound card to match the Amiga's in-built stereo sound, but people don't seem to notice this when they buy) Also the Amiga needs a better screen display to keep up with the latest developments in the IBM world. (Although I believe that this is happening as we speak)

The Amiga is not only being made faster and with better resolution, it is also coming down in price. The new base model set to succeed the Amiga 500 is the new Amiga 600, based on Surface Mount technology as seen in the laptop and notebook computers. The Amiga 600 comes with a hard disk as standard as well as a card slot on the side which will accept game cartridges and memory flash cards when they become available. (Sort of like a chip version of a hard disk) This model Amiga is set to smash the Game Console market (Nintendo, Sega etc) as well as give the cheap IBM clones a hard time. The Amiga 600 will sell for under $1000.

Enough of the sales talk. I don't make money from selling Amigas, I just want people to look at the Amiga when the time comes to upgrade. I have seen too many people buy IBM compatible machines, sold to them buy eager sales people, only to be dissapointed with the complexity of the configurations. Some programs want brand XXX type of Sound Card and brand YYY type of Graphics Card with brand ZZZ of monitor. Miss out on one of these and the program doesn't work.

There are more manufactures of IBM clones than there are models of cars currently of the road. Some clones are not even 100% compatible. They are selling very cheap because they do not have licensed operating systems. (They change it slightly to avoid paying for it) This then leads to problems running some software.

I think that I have just about covered all aspects of the Amiga and how it stacks up against the competition.

This article was written on the Amiga using PageStream and printed on a Star NX-10 9 pin.

EDITOR'S COMMENT

SCOTT does not need any introduction to this N/Letter. He started it 6 years ago, (I won't hold that against him.), but got carried away after the greener grass on the other side of the fence. I wonder if he still thinks it's greener.

However he has written a glowering resume of the AMIGA. But don't rush out and buy an AMEGA and expect it to do all those wonderous things at boot-up. Don't misunderstand me. It will do all that, if you buy enough add-ons for it. So will most other computers in it's class.

I am given to understand there is little difference between AMIGA 500, 1000, and 2000 except price and cabinet. There is a 3000 on the way that will be different, and the 600 is already being advertised.

Memory expansion is up to 9 Megabytes on board. All languages are available. It will support 2 floppies (3.5) and 2 hard disks. It uses it's own system of disk management, which is NOT CP/M.

There is lots of Shareware available and also Public domain programs, as well as the Mainline programs that cost an arm and a leg, (at least).

Shareware is a method whereby small groups or persons wish to sell programs they have written to the public direct. For a few bucks you get the program on disk. There may be or not be an instructions manual with it ON DISK. You can try it and see if it's what you want. If not, wipe the disk and forget it. If you want to continue using it, then send the suggested price to the author. In return yu are licenced to use it, and you will get the latest update and a printed manual, and what help you may need. Generally the asking fee is between 10 and 100 dollars Very few of the mainline programs are less than $500. Public domain programs are free to use and pass on to others without fee.

In fact Scott is writing some Shareware now, and has quite a parcel of it. He suggested I publish his phone no., but I don't know if he was serious. But if anyone wants to get in touch with him, I will let you have it.

There is also an AMIGA User's Club in Melb. And reconditioned AMIGAs are advertised for $399.

It may be of interest to know that there are not any AMIGA clones or copies about. Most good things are copied.

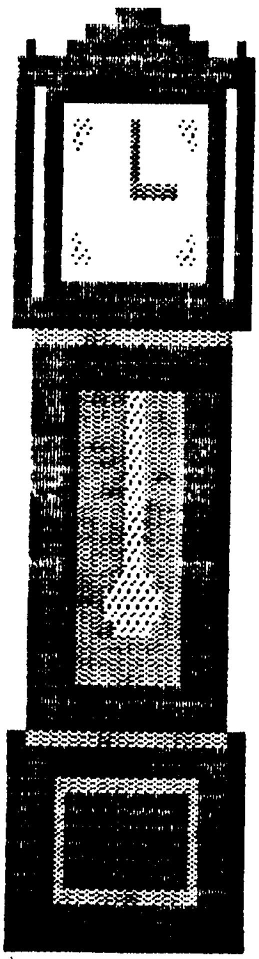
APPLE / MacINTOSH. I sent an invitation to them to contribute a little about their product, but they have not had the curtsy to even reply. I would not know if that is their normal style of buisness. However I can't tell you anything about them,

CONTINUE P. 8

OUR WINNING ENTRY

BY Peter Watson

```
5 'GRANDFATHER CLOCK
10 MODE(1):COLOR4,0
20 FORX=50TO70
30 FORY=20TO60
40 SET(X,Y)
50 NEXTY,X
60 FORX=48TO50
70 FORY=47TO60
80 SET(X,Y)
90 NEXTY,X
100 FORX=70TO72
110 FORY=47TO60
120 SET(X,Y)
130 NEXTY,X
140 FORX=48TO72
150 FORY=4TO20
160 SET(X,Y)
170 NEXTY,X
180 COLOR3
190 FORX=55TO65
200 FORY=25TO43
210 SET(X,Y)
220 NEXTY,X
230 COLOR2:FORX=60TO61
240 FORY=25TO38
250 SET(X,Y)
260 NEXTY,X
270 FORY=6TO18
280 RESET(50,Y):RESET(70,Y)
290 NEXTY
300 FORX=53TO67
310 FORY=7TO17
320 RESET(X,Y)
330 NEXTY,X
340 COLOR3
350 FORX=50TO70
360 SET(X,21):SET(X,47)
370 NEXTX
380 FORX=53TO67
390 SET(X,50):SET(X,57)
400 NEXTX
410 FORY=50TO57
420 SET(53,Y):SET(67,Y)
430 NEXTY
440 FORY=8TO12
450 SET(60,Y)
460 NEXTY
470 FORX=61TO64
480 SET(X,12)
490 NEXTX
500 COLOR2
510 SET(54,8):SET(54,9):SET(55,8)
520 SET(66,8):SET(65,8):SET(66,9)
530 SET(54,16):SET(54,15):SET(55,
540 SET(66,16):SET(65,16):SET(66,
550 FORX=58TO63
560 FORY=37TO40
570 SET(X,Y)
580 NEXTY
590 NEXTX
600 COLOR3
610 SET(58,37):SET(58,40):SET(63,37):
SET(63,40)
620 COLOR4
630 FORX=53TO67
640 SET(X,3)
650 NEXTX
660 FORX=55TO65
670 SET(X,2)
680 NEXTX
690 FORX=58TO62
700 SET(X,1)
710 NEXTX
720 SET(49,3):SET(71,3)
730 COPYA
990 GOTO990
```



If the printer is online then BRUN a printer patch first. Then RUN this program.

If a printer is not online, then delete or REM line 730.

```
5 '
10 '      ************************
20 '      ***   VISIBLE Z-80    ***
30 '      ***   DEMO OF LDIR    ***
40 '      *** ASSEMBLER TUTOR   ***
50 '      *** BY R.B.K 7/3/91   ***
60 '      ************************
70 '      *** EXECUTION TIME 70 SECS.
80 '
90 '      ***DEMONSTRATION OF SCREEN FILL IN BASIC THAT EMULATES
100 '     ***THE LDIR INSTRUCTION OF THE Z80.
110 '     *VARIABLES USED RESEMBLE THOSE OF THE Z80 REGISTER SET.
120 '
130 '
140 MODE(1)                 :'***HI-RES SCREEN.
150 COLOR ,0                :'***GREEN BACKGROUND.
160 SOUND 10,1              :'***TIMING MARK.
170 '
180 '***ASSEMBLER SIMULATION STARTS HERE.
190 '***INITIALIZE ALL OF THE REGISTERS USED.
200 A%=170                  :'LD A,170     VALUE.
210 HL%=28672               :'LD HL,7000H SOURCE.
220 DE%=28673               :'LD DE,7001H DESTINATION.
230 BC%=2047                :'LD BC,07FFH COUNT.
280 '
290 '***PUT FIRST VALUE INTO START OF VIDEO RAM.
300 POKE HL%,A%             :'LD(HL),A
380 '
390 '***CARRY OUT DESTRUCTIVE BLOCK MOVE.
400 '                       :'LDIR
410 POKE DE%,PEEK(HL%)      :'      (DE) <- (HL)
420 HL%=HL%+1               :'       HL  <-  HL+1
430 DE%=DE%+1               :'       DE  <-  DE+1
440 BC%=BC%-1               :'       BC  <-  BC-1
450 IF BC%<>0 THEN GOTO 410:'        TEST FOR END
460 '                       :'RET
470 '
490 '***FINISH OFF.
500 SOUND 10,1              :'***TIMING MARK.
510 FOR I=0 TO 2000:NEXT I
520 STOP
600 END
```

```
30120 PT%=0
30130 HD$=" BINARY  HEX DEC N Z"
30200 DIM OP$(2)
30210 FOR Q%=0 TO 2
30220 READ OP$(Q%)
30230 NEXT Q%
30240 DATA "AND","ORA","EOR"
30300 GOSUB 50000
30400 CLS
30500 RETURN
40000 '***RANDOM NUMBER GENERATOR IN RANGE OF MN% - MX%***
40100 RN%=INT(RND(0)*(MX%-MN%))+MN%
40200 RETURN
50000 '***INSTRUCTIONS***
50010 CLS
50020 PRINT"THIS PROGRAM IS DESIGNED TO MAKETHE USER FAMILIAR ";
50030 PRINT"WITH LOGIC    OPERATORS."
50040 PRINT"THE 'AND' 'OR' AND 'EOR(XOR)'"
50050 PRINT"OPERATORS ARE TESTED.":PRINT
50060 PRINT"ADDITIONALLY BINARY, HEXADECIMALAND DECIMAL";
50070 PRINT" NOTATION IS USED.":PRINT
50080 PRINT"THE SETTING OF THE 'NEGATIVE'   AND 'ZERO' FLAG ";
50090 PRINT"IN A TYPICAL MPUIS ALSO SHOWN IN THE ANSWER."
50100 PRINT"IF A FLAG IS SET, IT IS SET TO 1";
50110 PRINT"I.E.THE CONDITION IS TRUE.":PRINT:GOSUB 60000
50200 PRINT"THE PROGRAM WILL ACCEPT"
50205 PRINT"RESPONSES PREFIXED BY":PRINT
50210 PRINT"       BINARY  <B>"
50220 PRINT"   HEXADECIMAL <H>  OR"
50230 PRINT"       DECIMAL <D>":PRINT
50240 PRINT"ALSO A BONUS SCORE IS GIVEN IF"
50250 PRINT"THE ANSWER IS GIVEN IN BINARY.":PRINT:PRINT
50255 PRINT:PRINT:PRINT:PRINT
50260 GOSUB 60000:RETURN
60000 '***SUB FOR NEW SCREEN***
60120 PRINT"PRESS ANY KEY TO CONTINUE";
60130 AA$=INKEY$:AA$=INKEY$:IF AA$="" THEN GOTO 60130
60140 CLS:RETURN
```

[Editor's Comment cont.] *FROM BACK PAGE*

other than that there is a User's Group in the phone book.

I have given a guide on IBM. Scott has filled 2 pages with "cowyard confetti" about AMIGA, and MacIntosh leaves us to guess.

So which is the best computer for casual home use. Did you ask me ? My guess is VZ200 with a new keyboard (300 keyboards are direct interchange) and a 64 K or modified 16 K memory expansion, plus a disk drive. (Ed.)